REMARKS/ARGUMENTS

Claims 41-45 and 57-77 are pending. Claims 41, 43, 45, 58, 63, 64, 65, 69, and 71-77 have been amended. No new matter has been introduced. Applicants believe the claims comply with 35 U.S.C. § 112.

Applicants note with appreciation the indicated allowability of claims 43, 45, and 58-70 if rewritten in independent form. They have been rewritten accordingly. Thus, claims 43, 45, and 58-70 are believed to be allowable.

Rejection Under 35 U.S.C. § 102

Claim 41 is rejected under 35 U.S.C. § 102(b) as being anticipated by Delp et al. (US 5,871,018).

Applicants respectfully submit that claim 41 is novel and patentable over Delp et al. because, for instance, Delp et al. does not teach or suggest providing a two-dimensional user-specified basis function including overlapping portions that are disposed at a plurality of locations and overlap with one another to represent a three-dimensional profile which has symmetry with respect to a two-dimensional section extending along a treatment pattern. Nor does Delp et al. disclose fitting the three-dimensional target profile with the two-dimensional user-specified basis function to obtain a distribution of the overlapping portions that are disposed at the plurality of locations, wherein each overlapping portion represents a two-dimensional treatment portion to be applied to a tissue and combined with other overlapping portions to achieve the three-dimensional target profile for treatment of the tissue according to the distribution obtained from the fitting.

In the present application, for instance, Figs. 1 and 2 show overlapping rectangular spots or portions, and Fig. 4C illustrates overlapping circular spots or portions. The overlapping of these portions, disposed at a plurality of locations, form a two-dimensional basis function. The three-dimensional target profile can be fitted using the two-dimensional basis function, thereby producing a distribution of the overlapping portions that are disposed at the

plurality of locations. Each overlapping portion represents a two-dimensional treatment portion (e.g., ablation portion) to be applied to a tissue and combined with other overlapping portions to achieve the three-dimensional target profile for treatment of the tissue according to the distribution. Examples of three-dimensional target profiles are shown in Figs. 11, 13, and 15.

Delp et al. discloses taking CT image slices of a bone (each slice represents a two-dimensional image of a body portion taken in the transverse plane by an imaging means), collecting the image data of the slices, and generating a three-dimensional computer model of the bone using the collected image data of the slices (col. 8, line 45 to col. 9, line 1; Figs. 6 and 7). This is completely different from the invention as recited in claim 41. For example, the slices are not overlapping portions representing two-dimensional treatment portions to be applied to a tissue. Instead, the slices are two-dimensional images of transverse sections of a bone. There is no user-specified basis function that includes the overlapping portions, and no fitting of the three-dimensional target profile with the two-dimensional basis function to obtain a distribution of the overlapping portions. The slices are stacked together to reconstruct the three-dimensional bone structure. Therefore, claim 41 is novel and patentable over Delp et al.

Claims 41, 42, 44, and 57 are rejected under 35 U.S.C. § 102(e) as being anticipated by Stewart et al. (US 5,903,458).

Applicants respectfully submit that independent claim 41 is novel and patentable over Stewart et al. because, for instance, Stewart et al. does not teach or suggest providing a two-dimensional user-specified basis function including overlapping portions that are disposed at a plurality of locations and overlap with one another to represent a three-dimensional profile which has symmetry with respect to a two-dimensional section extending along a treatment pattern. Nor does Stewart et al. disclose fitting the three-dimensional target profile with the two-dimensional user-specified basis function to obtain a distribution of the overlapping portions that are disposed at the plurality of locations, wherein each overlapping portion represents a two-dimensional treatment portion to be applied to a tissue and combined with other overlapping portions to achieve the three-dimensional target profile for treatment of the tissue according to the distribution obtained from the fitting.

Stewart et al. discloses projection-based methods to map two-dimensional geometric shapes onto three-dimensional CAD models. Super-mesh reparametrization is obtained by projecting surface points into the super-mesh space. See Figs. 3(a)-3(c) and column 5, lines 17-64. This involves mapping selected surface patches from the object space to the super-mesh space, creating a basis function in one dimension to represent the characteristic profile of a feature, translating the one-dimensional basis function to a function in two dimensions in a DSM feature space, mapping the DSM feature space to the super-mesh space, and defining the location of an individual surface point lying within the boundary of the mapped basis function.

The reparametrization approach in Stewart et al. is completely different from the invention as recited in claim 41. For example, it involves mapping to the super-mesh space, which is a global, uniform parametric space for topologically disconnected, geometrically disproportional surface patches. The surface points are not overlapping portions representing two-dimensional treatment portions to be applied to a tissue. There is no user-specified two-dimensional basis function that includes the overlapping portions, and no fitting of the three-dimensional target profile with the two-dimensional basis function to obtain a distribution of the overlapping portions.

For at least the foregoing reasons, claim 41, and claims 42, 44, and 57 depending therefrom, are novel and patentable over Stewart et al.

Claims 41, 42, 44, and 57 are rejected under 35 U.S.C. § 102(e) as being anticipated by Clapham (US 6,245,059).

Applicants respectfully submit that independent claim 41 is novel and patentable over Clapham because, for instance, Clapham does not teach or suggest providing a two-dimensional user-specified basis function including overlapping portions that are disposed at a plurality of locations and overlap with one another to represent a three-dimensional profile which has symmetry with respect to a two-dimensional section extending along a treatment pattern. Nor does Clapham disclose fitting the three-dimensional target profile with the two-dimensional user-specified basis function to obtain a distribution of the overlapping portions that are disposed

at the plurality of locations, wherein each overlapping portion represents a two-dimensional treatment portion to be applied to a tissue and combined with other overlapping portions to achieve the three-dimensional target profile for treatment of the tissue according to the distribution obtained from the fitting.

Clapham is directed to selectively offsetting one or more ablation profiles for treatment of standard refractive errors (such as myopia, hyperopia, and cylindrical astigmatism) at selected points across the corneal surface to reduce refractive errors resulting from corneal irregularities such as irregular astigmatism, corneal steepening in one quadrant, asymmetrical astigmatism, and the like. The mapping of the cornea in Clapham, however, does not involve the use of overlapping portions representing two-dimensional treatment portions to be applied to a tissue. There is no user-specified two-dimensional basis function that includes the overlapping portions, and no fitting of the three-dimensional target profile with the two-dimensional basis function to obtain a distribution of the overlapping portions.

For at least the foregoing reasons, claim 41, and claims 42, 44, and 57 depending therefrom, are novel and patentable over Clapham.

Rejection Under 35 U.S.C. § 103(a)

Claims 71-77 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Clapham.

U.S. Patent No. 6,245,059 to Clapham et al. was issued on June 12, 2001, which was after the March 13, 2001 priority date of the present application. Clapham et al. qualifies as prior art only under 35 U.S.C. § 102(e).

Further, Clapham et al. and the present application are commonly assigned to VISX, Inc., and were, at the time the inventions were made, owned by the same entity or subject to an obligation of assignment to the same entity. The parent application (09/805,737) was filed on March 13, 2001, which was after the November 29, 1999 enactment date of the American Inventors Protection Act of 1999, 106 P.L. 113; 113 Stat. 1501 (the "Act"). Section 4807 of the Act amended 35 U.S.C. § 103(c) to read as follows:

> (c) Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

The amendment to § 103(c) applies to any application for patent filed on or after the November 29, 1999 enactment date of the Act.

The present application meets the requirement of 35 U.S.C. § 103(c) with respect to commonly assigned U.S. Patent No. 6,245,059 to Clapham et al. Thus, Clapham et al. does not qualify as prior art under 35 U.S.C. § 103. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 71-77 under 35 U.S.C. § 103(a). Because claims 71-77 have been rewritten in independent form, they are allowable.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

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